Facilitating effective initiation of breastfeeding - a review of the recent evidence base

Abstract:

Midwives are in a unique position to support mothers in the initiation of breastfeeding. In order to advise and support mothers effectively it is important that midwives have a sound understanding of the evidence base underpinning practice. Traditional explanations of breast anatomy are now considered incorrect and over the years many of the practices in relation to breastfeeding have changed. It is important that midwives acquire knowledge on interventions that help rather than hinder breastfeeding. This paper explores the latest evidence on the lactating breast, the process of lactation, sucking skills, post birth practices impacting on the initiation of breastfeeding, and supporting the natural process of breastfeeding.

Key terms: breastfeeding practices, skin to skin contact, instinctive breastfeeding, confidence, skilled intervention

Introduction

> 'The new born comes into the world highly competent, well equipped to work magic with her mother and to make milk flow. The mother need only observe and marvel and respond to her baby and to her heart'. Nils Bergman, 2010 p. Vii

Midwives as the guardians of normal birth are in a unique position to support mothers in the initiation of breastfeeding and this is important in terms of the bio psychosocial context of breastfeeding. It is essential that knowledge is underpinned by the premise that breastfeeding is most successful where childbirth is free from anxiety, fear and danger (Smith & Kroeger, 2010). Vallone (2013, pg. 253) refers to breastfeeding as an 'elegant symphony of movements orchestrated by the new born's brain, eliciting responses via the nervous system and the hormones of the mother'. According to Wiessinger (2010) the resounding message learned from the observation of the initial contact of other mammals with their offspring from birth to the first feed is that if rejection is to be avoided the mother should not be disturbed, medication should be avoided, and the offspring should not be removed or cleaned (Wiessinger, 2010). Facilitating effective mother-infant breastfeeding needs a sound understanding of the evidence base so that when birth interventions are necessary for either the mother or infant, skilled care may be provided to help reduce any adverse breastfeeding consequences (Smith & Kroeger, 2010). A review by Dykes (2011) refers to the reversal of some of the harmful breastfeeding practices over the past twenty five years and the need for continued improvement to professional practice in order to provide appropriate breastfeeding support.

The lactating breast

Traditional explanations of breast anatomy are now considered incorrect, as high resolution ultrasound has improved our knowledge in relation to the lactating breast. Anatomical diagrams and descriptions of the lactating breast have existed since 1840 when Sir Astley Cooper undertook dissections of cadavers. Ramsay et al. (2005) in their research using ultrasound imaging of the human lactating breast have refined the anatomy of the breast and changed our understanding of the internal structure of the breast. The lactiferous ducts were once thought to lead to the lactiferous sinus. Ramsay's et al (2005) research demonstrated that the ducts branched off within the areola and closer to the nipple than previously thought. The lactiferous ducts are small (mean diameter 2mm), superficial and easy to compress. Ramsay et al. (2005) suggested that as there were no lactiferous sinus identified by ultrasound the ducts were responsible for transportation of milk and not as previously understood for storage. Ramsay et al (2005) found there were 4-18 main milk ducts and according to Geddes (2007) they are not always arranged systematically in a radial pattern and the main ducts may lie under one another (Geddes, 2007).

Key Points

• Approx. 9 ducts (range 4-18) in each lactating breast (Ramsay et al, 2005)
• Ducts are not always arranged systematically in a radial pattern and main ducts may lie under one another (Geddes, 2007)
• There is no evidence of a lactiferous sinus (reservoir for milk).
• Main function of the ducts is for transfer rather than storage of milk

The process of lactation

Lactation is the physiological completion of the reproductive cycle (Lawrence & Lawrence, 2005) with the components and appearance and volume of human milk varying depending on the stage of the process (Stables and Ranklin, 2011). The process of lactation can be divided into three stages during which the milk alters in components, appearance and volume

1. Lactogenesis 1 the initiation of milk secretion
2. Lactogenesis 2 the production of colostrum and transitional milk
3. Lactogenesis 3 the development of milk and maintenance of lactation

(Stables and Ranklin, 2011)

The lactogenic trigger may be the fall in the serum progesterone just before labour which releases the mammary secreting cells to respond to prolactin by producing milk (Stables and Ranklin, 2011). The effect of progesterone is so strong that if there is any fragment of the placenta retained lactogenesis 2 or the onset of milk production can be delayed (Riordan, 2005). The plasma prolactin levels increase sharply following the delivery of the placenta and production varies following a circadian rhythm with levels higher at night than during the day

(Stables and Ranklin, 2011). The plasma prolactin levels are affected by the frequency and intensity of nipple stimulation with the activation of prolactin receptor sites thus affecting breast milk production (Baker and Lamb, 2013).

According to Baker and Lamb (2013) milk does not 'come in' because it is already there as colostrum where the breasts are capable of lactation from sixteen weeks onwards. Neville et al (2001) suggest that the changes in milk composition should be viewed as a process where rapid changes occur in the first four days and followed by slower changes in the different components of milk throughout lactation. Therefore terms such as colostrum for the first four days and transitional milk from days four to ten days are helpful in supporting the individual woman through the process of lactation.

Sucking skills

The new-born's oral anatomy is his primary method of relating to the world (Brazelton, 1995) therefore it is important to understand how structure and function impact on breastfeeding. Watson Genna and Sandora (2013) describe suckling as the act of feeding at the breast and sucking to describe the oral motor activity that transfers milk in the context of breastfeeding being the norm. The temporalis and masseter muscles coordinate the movement of the jaw during sucking (Pollard, 2012). This raises the mandible during the positive pressure phase of the suck and lowering it during negative pressure. Walker (2010) noted that up and down jaw movements are not defining characteristics of good attachment and recommends looking out for deep jaw movement, audible sounds of swallowing and vibration on the occipital area of the head. Traditionally it was thought that "tongue stripping" was responsible for the removal of milk from the breast. Woolridge et al (1986) described the role of positive pressure exerted by the milk ejection reflex and the negative pressure in the infant's mouth where suction occurs due to the vacuum created in the mouth. Geddes (2007) described the nipple and areola being drawn into the mouth by negative pressure to the anterior point of the junction of the hard and soft palate. The use of ultrasound clearly identifies the peristaltic action of the tongue and has refined the interpretation of the suckling process at the breast (Jacobs et al, 2007; Geddes et al, 2008). Watson Genna and Sandora (2013) review of the evidence on the removal of milk indicate that milk flows from suction when the tongue and jaw drop during sucking and suggest that tongue stripping may be the positive pressure pushing the bolus of milk towards the oesophagus. Watson Genna and Sandora (2013) have described four phases of swallowing Table 2:

1. Oral preparatory phase: involves rooting, attachment and suckling
2. Oral transitory phase: milk is propelled to the back of the mouth

3. Pharyngeal phase: involves airway protection as breathing stops, soft palate rises to close of the nasal cavity and vocal cords close the trachea, the hyoid bones rise anteriorly, elevating the larynx.
4. Oesophageal phase: Milk bolus passes through the oesophagus aided by peristaltic movement.

Practices following birth which impact on breastfeeding

Moore et al. (2012) in their systematic review on early-skin-to-skin contact (SSC) for mothers and their healthy newborn infants refer to the paradox that for other mammals the experimental intervention is to separate new-borns from their mothers. While in western culture separation from the mother is common since the setting for birth moved from the home to the hospital. Smith& Kroeger (2010) refer to the international trend towards institutionalizing normal birth and the fact that the place of birth dictates birth practices and the corresponding effect on the initiation and continuation of breastfeeding. SSC involves placing the baby prone on the mother's chest with the head covered with a dry cap and a warm blanket across the back (Moore et al. 2012). Bergman (2013) considers birth as a critical time where the infant receives sensory input which primes the brain to develop in sequence to achieve a higher level of function. Recent developments in neuroscience question practices following birth which can affect the behaviour of the new born and have an adverse effect on breastfeeding (Bergman 2013). According to Bergman (2013) the most important stimuli that the new born requires are the mothers' smell and the touch, warmth, stability and movement that comes from SSC. These stimulations will fire and wire the brain of the new born creating the beginnings of vital pathways which need on going stimulation (Bergman, 2013).

Moore et. al (2012) also refer to the time of birth as important for programming of physiology and behaviour. While practices following birth vary in relation to the length of time for SSC Bergman (2013) argues that from a neurological development perspective the debate should centre on when separation should take place, if at all. Moore et al. 2012 concluded that infants receiving SSC interacted more, cried less, and breastfeed for longer. In spite of the large evidence base supporting the importance of sustained skin to skin contact this may not still take precedence in the busy post birth environment.

Supporting the natural process of breastfeeding

Midwives need to acquire the skills necessary to support the learning needs of the mother to facilitate right brained instinctive breastfeeding rather than focusing on a set of instructions (Glover & Wiessinger, 2013). To date education around the skills for breastfeeding has focused on positioning and attachment in relation to common positions for the mother and signs of correct attachment of the baby. Law et. al (2007) report a large variation in the breastfeeding knowledge of midwives working on postnatal wards. Their study focused on using a 'hands off' approach as a teaching intervention and they noted that there was still considerable confusion between the terms of positioning and attachment with both being used interchangeably. Midwives must ensure that women recognise correct attachment prior to leaving the hospital setting. Working collaboratively using evidence based standards of care will support new mothers and their families to achieve successful breastfeeding (UNICEF UK BFI, 2012).

There is growing emphasis on the need to focus on the natural process of breastfeeding and the recognition that for the infant breastfeeding is innate and instinctive (Glover & Wiessinger 2013). Babies instinctively search for the breast by lifting their heads and thrusting their chin and mouth forward this 'instinctive position' (Glover & Wiessinger, 2013) matches the correct process for good attachment (Woolridge, 1986). Widsrom et. al (2011) state that if healthy infants are allowed to go through the nine behavioural changes following birth of crying, relaxation, awakening, activity, crawling, resting, familiarization, suckling, sleeping this results in infant self- attachment to the breast. According to Glover & Wiessinger (2013) when the mother brings her baby to the breast in the 'instinctive position' this supports the innate reflex behaviours of the infant to accomplish attachment. Colson et al (2008) findings suggest that semi-reclined maternal positions with the baby lying on the abdomen 'laid back breastfeeding' or biological nurturing allows the infant the freedom to use the primitive neonatal reflexes such as pivoting of the head necessary for the establishment of breastfeeding. They conclude that newborns are abdominal feeders and they use their anti-gravity reflexes to help them latch onto the breast. This observation could impact on the routine teaching of breastfeeding skills currently in force.

Conclusion

The most important practice to support breastfeeding is skin to skin contact immediately following birth. This simple strategy commences a chain of events that affects the neurodevelopment of the infant and mother (Smith & Kroeger, 2010). Post birth practices such as weighing, measuring, wrapping, or treatment in any way should not take precedence over immediate direct contact of the new born with the mother unless absolutely necessary. Midwives and all health care professionals need to appreciate their central role of giving mothers confidence in their innate ability to breastfeed. Midwives need to have in depth knowledge of the process of breastfeeding so that where necessary an appropriate intervention may be used for those mothers and babies who need it. Professional practice needs to continue to improve and maternity care systems need to be challenged where necessary so that women and infants are supported to breastfeed in the most optimum way (Dykes, 2011).

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